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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.              | CONFIRMATION NO. |
|--|-------------|----------------------|----------------------------------|------------------|
| 09/513,702   | 02/25/2000  | Toshikazu Mukaihara  | P1168                            | 7271             |
| 30764  | 7590        | 11/20/2003           |                                  |                  |
| SHEPPARD, MULLIN, RICHTER & HAMPTON LLP<br>333 SOUTH HOPE STREET<br>48TH FLOOR<br>LOS ANGELES, CA 90071-1448 |             |                      |                                  |                  |
|  |             |                      | EXAMINER<br>FLORES RUIZ, DELMA R |                  |
|  |             |                      | ART UNIT<br>2828                 | PAPER NUMBER     |

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                      |                  |  |
|------------------------------|----------------------|------------------|--|
| <b>Office Action Summary</b> | Application No.      | Applicant(s)     |  |
|                              | 09/513,702           | MUKAIHARA ET AL. |  |
|                              | Examiner             | Art Unit         |  |
|                              | Delma R. Flores Ruiz | 2828             |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3, 4, 9, 12, 15 – 17, 20, 25, 27, and 29, are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (5,737,474) in view of Hayashi et al (5,960,019).

***Regarding claim 1, 3, 4, 9, 12, 15 – 17, 20, 25, 27, and 29,*** Aoki discloses a semiconductor pumping laser device comprising; a resonator cavity having a first end face and second end face, and comprising a cavity portion between the first and second end face, and width that can only support a single transverse mode; a laminated structure of a semiconductor material including an active layer comprising at least one

quantum well structure, said laminated structure being formed on a substrate and having at least a portion disposed in said cavity portion; a low reflection film formed having a reflectance of 5 % or less on one end face of the structure; and a high reflection film having a reflectance of 80 % or more formed on the other end face of the structure (see Figs. 4A, - 4C, 5A – 5C, and 6A – 6C, Column 6, Lines 40 – 45, Column 7, Lines 12 – 29, 55 – 58, Column 8, Lines 46 – 56). A active layer has no more than two quantum wells, wherein said structure comprising a gallium, arsenide, and wherein said laminated structure includes at least gallium an arsenide and includes at least indium and nitrogen (see Figs. 4A, - 4C, 5A – 5C, and 6A – 6C, Column Lines 62 – 67, Column 6, Lines 1 – 45, Column 7, Lines 1 – 58, Column 8, Lines 46 – 56). A semiconductor-pumping laser emits light in the 0.98  $\mu\text{m}$  wavelength-band (Column 4, Lines 26 – 34). The light output of the laser device is coupled to a optical fiber such that light from an optical fiber is feedback to the laser device , Column 6, Lines 1 – 45, Column 7, Lines 1 – 58, Column 8, Lines 46 – 56). Aoki discloses the claimed invention except for the cavity portion having a length grater than or equal to 1,200  $\mu\text{m}$ . It would have been obvious at the time of applicant's invention, to combine Hayashi of teaching a the cavity portion having a length grater than or equal to 1,200  $\mu\text{m}$  with semiconductor laser because it would have been obvious to one of ordinary skill in the art at the time the invention was made to the cavity portion having a length grater than or equal to 1,200  $\mu\text{m}$ , since it has been held that where the general conditions of a claim are

disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claim s 2, 5 – 8, 10 – 11, 13 – 14, 18 – 19 21 – 24, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aoki et al. (5,737,474) in view of Hayashi et al (5,960,019) further in view of DeMars et al (6,122,299).

***Regarding claims 2, 5 – 8, 10 – 11, 13 – 14, 18 – 19 21 – 24, 26, and 28*** Aoki in view of Hayashi discloses the claimed invention except for the semiconductor device has a transverse light confinement structure with the transverse refractive index difference of about  $1 \times 10^{-2}$  for oscillation modes, the coefficient of light confinement to the active layer range for 1% to 2% and the output light of the laser id free of kinks for driving currents up to at least 350 mA, where a kinks is a variation of 15% or more in the external differential quantum efficiency of the laser relative to the initial value present when the injected current just exceeds the threshold current. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to semiconductor device has a transverse light confinement structure with the transverse refractive index difference of about  $1 \times 10^{-2}$  for oscillation modes, the coefficient of light confinement to the active layer range for 1% to 2% the output light of the laser id free of kinks for driving currents up to at least 350 mA, where a kinks is a variation of 15% or

more in the external differential quantum efficiency of the laser relative to the initial value present when the injected current just exceeds the threshold current since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

Applicant's arguments filed 10/14/2003 have been fully considered but they are not persuasive. Applicant's arguments with respect to claims 1 - 29 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

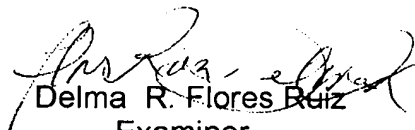
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (703) 308-6238. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7724 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3431.



Delma R. Flores Ruiz  
Examiner  
Art Unit 2828  
DRFR/PI  
November 12, 2003



Paul Ip  
Supervisor Patent Examiner  
Art Unit 2828